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Torque Specifications

Torque Spec Chart

Torque Tightening

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S-Series Torque Specifications

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11-13-2004, 02:43 AM

#1

[wolfman](#)
Super Member

Join Date: Jun 2002
Location: Texas
Posts: 12,066
[wolfman's Photos](#)

S-Series Torque Specifications
Torque Ft/Lbs **Unless otherwise indicated!**
91/92 Models
A/C Compressor Bracket to Engine Bolts 19
A/C Compressor to Front Bracket Bolt 40
A/C Compressor to Rear Bracket Bolt 19
Accessory Belt Idler Bolts 33
Accessory Belt Tensioner Bolts 22
Axle Shaft Support Bracket to Engine Bolts 41
Camshaft Sprocket Bolt 75
Connecting Rod Cap Nut 33
Cradle to Body Bolts 151
Crankshaft Sprocket Bolt 158
Cylinder Head Bolt (In criss-cross sequence from center OUT)
DOHC-
Tighten all bolts in sequence to 22ft/lbs.
Then tighten all bolts to 37ft/lbs.
Repeat sequence, tightening all bolts an additional 1/4 turn.
SOHC-
Tighten all bolts in sequence to 22ft/lbs.
Then tighten all bolts to 33ft/lbs.
Repeat sequence, tightening all bolts an additional 1/4 turn.
Engine Block Drain Plug 26
Engine to Transaxle Stiffening Brackets 40
Exhaust Manifold Retaining Nuts
DOHC 23
SOHC 16
Exhaust Pipe to Manifold Nuts 23
Flex Plate to Crankshaft 44
Flex plate to Torque Converter Bolts 41
Flywheel to Crankshaft 59
Front Engine Mount 52
Front Pulley to Crankshaft Bolt 159
Front Strut to Knuckle Bolt 148
Fuel Lines 19
Intake Manifold Retaining Nuts 22
Intake Manifold Support Bracket to Engine Bolt
DOHC
LH Side 22
RH Side 41
SOHC 22
Main Bearing Cap Bolts 37
Oil Pan Drain Plug 26
Power Steering Pump Retaining Bolts 27
Rocker Arm Shaft Bolts 19
Starter Motor Retaining Bolts 27
Throttle Body Bolts 23
Timing Chain Guide Bolts
Fixed 21
Pivoting 19
Torque Axis Mount to Engine Nuts 52
Torque Strut to Cradle Brackets 52

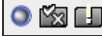
Transaxle to Block Bolts
 Lower 96
 Upper 66
 Water Pump to Block Bolts 22
 Water Pump Pulley Bolts 19
 Wheel Lug Nuts 103
 Cam Cover Bolts 89 **IN lbs**
 Camshaft Bearing Cap Bolt 124
 Coolant Sensor 71 **IN lbs**
 Crankshaft Seal Housing to Block Bolts 97 **IN lbs**
 Front Cover Bolts
 Lower Center Bolt 89 **IN pds**
 Perimeter and Upper Center 22
 Fuel Line to Fuel Rail 133 **IN lbs**
 Fuel Line to Fuel Pressure Regulator 133 **IN lbs**
 Oil Pan Bolts 80 **IN lbs**
 Oil Pump Cover Screws 97 **IN lbs**
 Starter Motor Bracket 80 **IN lbs**
 Timing Chain Tensioner Bolts 168 **IN lbs**

93-97 Models

A/C Compressor Bracket to Engine Bolts 19
 A/C Compressor to Front Bracket Bolt 40
 A/C Compressor to Rear Bracket Bolt 19
 Accessory Belt Idler Bolts 33
 Accessory Belt Tensioner Bolts 22
 Camshaft Sprocket Bolt 75
 Connecting Rod Cap Nut 33
 Cradle to Body Bolts 151
 Crankshaft Pulley/Balancer Bolt 159
 Cylinder Head Bolt (In criss cross sequence from center OUT)
 DOHC
 Tighten all bolts in sequence to 22ft/lbs.
 Then tighten all bolts to 37ft/lbs.
 Repeat sequence, tightening all bolts an additional 1/4 turn.
 SOHC
 Tighten all bolts in sequence to 22ft/lbs.
 Then tighten all bolts to 33ft/lbs.
 Repeat sequence, tightening all bolts an additional 1/4 turn.
 Engine Mounts
 Front Mount to Block 52
 Rear Mounts 35
 Exhaust Manifold Retaining Nuts
 DOHC 23
 SOHC 16
 Exhaust Pipe to Manifold Nuts 23
 Flex Plate to Crankshaft 44
 Flex plate to Torque Converter Bolts 41
 Flywheel to Crankshaft 59
 Front Cover
 Except Lower Center Bolt 22
 Intake Manifold Retaining Nuts
 DOHC 22
 SOHC 15
 Oil Pan Darn Plug 26
 Power Steering Pump Retaining Bolts 27
 Rocker Arm Shaft Bolts 19
 Starter Motor Retaining Bolts 27
 Strut to Steering Knuckle Bolt 148
 Throttle Body Bolts 24
 Timing Chain Guide Bolts 19
 Timing Chain Tensioner Bolt 14
 Torque Axis Mount to Engine Nuts 37
 Transaxle to Block Bolts
 Lower 96
 Upper 66
 Water Pump to Block Bolts 22
 Water Pump Pulley Bolts 19
 Wheel Lug Nuts 103
 Cam Cover Bolt 89 **IN lbs**
 Camshaft Bearing Cap Bolt 124 **IN lbs**
 Crankshaft Seal Housing to Block Bolts 97 **IN lbs**
 Front Cover Lower Bolt 89 **IN lbs**
 Fuel Line to Fuel Pressure Regulator Nut 133 **IN lbs**
 Oil Pan Bolts 80 **IN lbs**
 Oil Pump Cover Screws 97 **IN lbs**

98-01 Models

A/C Compressor Bracket to Engine Bolts 19
 A/C Compressor to Front Bracket Bolt 40
 A/C Compressor to Rear Bracket Bolt 19
 Accessory Belt Idler Bolts 22
 Accessory Belt Tensioner Bolts 22



Camshaft Sprocket Bolt 75
Clutch Pressure Plate 19
Connecting Rod Cap Nut 33
Cradle to Body Bolts 151
Crankshaft Pulley/Balancer Bolt 159
Cylinder Head Bolt (In criss cross sequence from the center OUT)
DOHC
Tighten all bolts in sequence to 22ft/lbs.
Then tighten all bolts to 37ft/lbs.
Repeat sequence, tightening all bolts an additional 1/4 turn.
SOHC
Tighten all bolts in sequence to 22ft/lbs.
Then tighten all bolts to 33ft/lbs.
Repeat sequence, tightening all bolts an additional 1/4 turn.
Engine Mounts
Front Mount to Block 52
Front Mount to Front Cover 37
Rear Mounts 35
Exhaust Manifold Retaining Nuts
DOHC 150 **IN lbs**
SOHC 16
Exhaust Pipe to Manifold Nuts 23
Flex Plate to Crankshaft 44
Flex plate to Torque Converter Bolts 52
Flywheel to Crankshaft 59
Front Cover
Except Lower Center Bolt 22
Lower Center Bolt 89 **IN lbs**
Intake Manifold Retaining Nuts 22
Main Bearing Cap Bolts 37
Oil Pan Drain Plug 27
Power Steering Pump Retaining Bolts 22
Rocker Arm Shaft Bolts 19
Spark Plugs 20
Starter Motor Retaining Bolts 27
Strut to Steering Knuckle Bolt 148
Throttle Body Bolts 23
Timing Chain Guide Bolts 19
Torque Axis Mount to Engine Nuts 37
Transaxle to Block Bolts
Lower 96
Upper 66
Water Pump to Block Bolts 22
Water Pump Pulley Bolts 19
Wheel Lug Nuts 103
Camshaft Bearing Cap Bolt 124 **IN lbs**
Crankshaft Seal Housing to Block Bolts 97 **IN lbs**
Cylinder Head Cover Bolt 89 **IN lbs**
Oil Pan Bolts 80 **IN lbs**
Oil Pump Cover Screws 97 **IN lbs**
Timing Chain Tensioner Bolts 168 **IN lbs**

...

Old Saturns never die, people KILL them, so check your damn oil!
"Unthinking respect for authority is the greatest enemy of truth." Albert Einstein

REWARD EXCELLENCE!

 Rate the quality of this post and help *wolfman* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

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11-13-2004, 02:51 AM

#2

M.Nguyen

Senior Member



Join Date: May 2004
Location: StocktonSanDiegoSacramento
Posts: 1,109

Re: "S" Series torque specifications

Quote:

Originally Posted by **wolfman**
Strut to Steering Knuckle Bolt 148

Thought it was 126...I don't have any literature to back me up, but iirc it's 126 ft/lbs. If not, then i've been wrong for quite some time...Hahaha...

Anyways, Great reference tool, wolfman!

REWARD EXCELLENCE!

 Rate the quality of this post and help *M.Nguyen* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

www.saturnfans.com/forums/showthread.php?t=44221

3/7

1997 SL2 1993 SL2	you!
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11-14-2004, 10:36 AM #3

freakerz
Advanced Member

Join Date: Aug 2003
Posts: 645

Re: "S" Series torque specifications
From Hayne's:

Strut-to-suspension knuckle bolts/nuts
1995 and earlier 148lbs
1996 126lbs

Enjoy! I'll check others later 😊 since I'll make this a guide on csq.com 😊

REWARD EXCELLENCE!
 Rate the quality of this post and help *freakerz* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

12-01-2004, 12:55 AM #4

hckysakpro
Junior Member

Join Date: Nov 2004
Posts: 12

Re: "S" Series torque specifications
sorry i'm confused, I am not sure what exactly the list is saying. If someone could explain that would be really helpful.
thank you.

REWARD EXCELLENCE!
 Rate the quality of this post and help *hckysakpro* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

12-01-2004, 08:44 AM #5

David 93 SL2m
Master Member

Join Date: May 2000
Location: North America
Posts: 3,594
[David 93 SL2m's Photos](#) 

Re: "S" Series torque specifications
Quote:
Originally Posted by **hckysakpro**
*sorry i'm confused, I am not sure what exactly the list is saying. If someone could explain that would be really helpful.
thank you.*

Torque is the force used to rotate things. Our cars have lots of bolts and nuts. If we don't tighten them enough then they might loosen. If we tighten them too much then we can damage things. Wolfman provided lists of how tight bolts and nuts and stuff need to be tightened. The units for torque are foot-pounds (as in distance and weight) for SAE and newton meters for metric. There are other units for torque too such as inch-pounds (12 inch-pounds = 1 foot-pound), newton-centimeters, millinewton-meters, etc. and these are less common. We use a "torque wrench" when applying force to rotate bolts and such. Torque wrenches come in a few varieties and they range in price from between \$10 and to amounts exceeding \$200. I'd guess that a decent torque wrench costs between \$30 and \$80. Anybody that does the most basic car maintenance to include swapping their wheels/tires around should have a torque wrench in their tool collection.

...
Current
· 2004 VUE 124K
· 2007 ION3 112K
...
Past
· 1993 SL2 212K
· 1993 SC2 140K
· 1996 SC2 157K
· 1996 SC2 126K
· 2001 SC2, 145K
· 2002 L200 20K
· 2002 SL1 129K
...

REWARD EXCELLENCE!
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12-01-2004, 02:12 PM #6

hckysakpro
Junior Member

Join Date: Nov 2004
Posts: 12

Re: "S" Series torque specifications
right on, thanks.
i was thinking like the power in your engine, but thanks for clearing it up. makes sense

REWARD EXCELLENCE!
 Rate the quality of this post and help *hckysakpro* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

12-01-2004, 03:31 PM eRic 02sc2 Super Member Join Date: Feb 2000 Location: Closed Course. Professional Driver. Posts: 14,543 eRic 02sc2's Photos	#2 Re: "S" Series torque specifications (Torque x Engine speed) / 5,252 = Horsepower Torque is a force that tends to rotate or turn things. We generally express force from an engine or motor in pound-feet and torque needed to tighten a fastener in foot-pounds. ... eRic 02sc2 DR SCCA Solo 2001,2002 1st DSP WHRRi 2007,2010 Fun Run 1st DR SCCA 2008 Triathlon 1st PF DR SCCA Solo 2009 2nd ST DR SCCA Solo 2010 1st ST Crutchfield: pkeqe-6j8e3-d2qqe REWARD EXCELLENCE! Rate the quality of this post and help <i>eRic 02sc2</i> reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!
01-05-2005, 10:06 PM cardocr New Member Join Date: May 2004 Location: Chicago area Posts: 8 cardocr's Photos	#8 Re: S-Series Torque Specifications What is the torque specification for the intake manifold retaining bolts on a 2000 Saturn SL2 with the new plastic intake? The post above indicates 22 ft lbs but that is the same spec as the cast iron intake. I would think it might be lower for the plastic intake. Thanks. REWARD EXCELLENCE! Rate the quality of this post and help <i>cardocr</i> reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!
01-05-2005, 10:35 PM ssicarman Super Member Join Date: Oct 2000 Location: Western Canada Posts: 10,444 ssicarman's Photos	#9 Re: S-Series Torque Specifications The intake manifold-to-head are 13 N·m (9.5 lb ft). The EGR pipe-to-cylinder head is 25 N·m (19 lb ft). ... A lousy day in paradise is still a day in paradise. REWARD EXCELLENCE! Rate the quality of this post and help <i>ssicarman</i> reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!
02-05-2005, 09:44 PM David 93 SL2m Master Member Join Date: May 2000 Location: North America Posts: 3,594 David 93 SL2m's Photos 2004 VUE 2.2L 2007 ION-3 Sedan	#10 The torque spec for the thermostat housing bolts is 22 ft. lbs. As always, be sure to use a 6-point socket as the 12-point sockets are likely to "round" the hexagonal heads of the bolts. ... Current • 2004 VUE 124K • 2007 ION3 112K ... Past • 1993 SL2 212K • 1993 SC2 140K • 1996 SC2 157K • 1996 SC2 126K • 2001 SC2, 145K • 2002 L200 20K • 2002 SL1 129K ... REWARD EXCELLENCE! Rate the quality of this post and help <i>David 93 SL2m</i> reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

04-11-2005, 06:50 PM

#11

1nf3st

Junior Member

Join Date: Apr 2005
Location: Kansas City, MO
Posts: 18

1995 SL2

**Re: S-Series Torque Specifications**

so does a torque wrench have an adjustable torque setting like an electric screwdriver to prevent a bolt to be over tightened?

REWARD EXCELLENCE!

Rate the quality of this post and help **1nf3st** reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

04-11-2005, 07:02 PM

#12

Razorbak

Master Member



Join Date: Aug 2004
Location: Chicagoland
Posts: 2,860

[Razorbak's Photos](#)

1996 SL2

**Re: S-Series Torque Specifications**

Quote:

Originally Posted by **1nf3st**

so does a torque wrench have an adjustable torque setting like an electric screwdriver to prevent a bolt to be over tightened?

Depends on the type of torque wrench. Clicker types do. Beam types don't.

REWARD EXCELLENCE!

Rate the quality of this post and help **Razorbak** reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!

04-11-2005, 07:23 PM

#13

David 93 SL2m

Master Member



Join Date: May 2000
Location: North America
Posts: 3,594

[David 93 SL2m's Photos](#)

2004 VUE 2.2L
2007 ION-3 Sedan

☺ Torque Wrenches

Quote:

Originally Posted by **1nf3st**

so does a torque wrench have an adjustable torque setting like an electric screwdriver to prevent a bolt to be over tightened?

http://home.jtan.com/~joe/KIAT/kiat_3.htm

Quote:

There are two common types of torque wrenches for home shop use; the "beam" type and the "clicker" type. The beam type torque wrench is shown in Figure 1c and is the least expensive torque wrench. The beam wrench works by the beam bending in response to the torque applied as shown in Figure 2c. This type is very simple, reliable, and accurate, and there is little that can go wrong with it when used properly. When tightening a bolt, make sure to only apply force in the center of the handle. This allows the beam to bend in the manner it was designed to indicate the correct torque. Do not over torque the wrench or the beam may bend permanently. Do not drop the wrench because rough handling can bend the pointer arm or pointer. If the pointer is bent, it can be bent back to the center without affecting accuracy. If the beam is bent it cannot be bent back.

Figure 3c shows the clicker torque wrench, which is sometimes called a digital wrench. A clicker torque wrench works by preloading a "snap" mechanism with a spring to release at a specified torque. When the mechanism releases the ratchet head it makes a "click" noise as shown in Figure 4c. The torque is set by rotating the handle until the desired torque is shown in the window. Older clicker wrenches have a micrometer style scale along the handle instead of a window. The clicker wrench is much easier to use because it is easy to set the desired torque and just pull until you feel the click. The ratchet head also makes it easy to use in confined spaces. It is good practice to set a clicker wrench to its lowest setting before putting it away to prevent the spring from taking a set. Avoid rough handling and dropping because it can damage the mechanism. Do not use the torque wrench to loosen tight fasteners since this may damage the calibration.

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...
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- 2004 VUE 124K
- 2007 ION3 112K

...
Past

- 1993 SL2 212K
- 1993 SC2 140K
- 1996 SC2 157K
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- 2001 SC2, 145K
- 2002 L200 20K
- 2002 SL1 129K

...
REWARD EXCELLENCE!



Rate the quality of this post and help *David 93 SL2m* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!



04-19-2005, 08:33 PM

#14

[kickarse](#)
Member


Join Date: Feb 2005
Location: Springfield, MA
Posts: 253



Re: S-Series Torque Specifications

hey you rock thanks!

...

02 Saturn L200 - 156k miles - Black on Black
- HIT! 96 Saturn SL2 - 172k miles - Fire Red
- SOLD 97 Saturn SL1 - 126k miles - Green/Brown Speckle

REWARD EXCELLENCE!



Rate the quality of this post and help *kickarse* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!





Rate the quality of this post and help *peppermrj* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!



09-04-2005, 02:26 AM

#15

[peppermrj](#)
Advanced Member



Join Date: Feb 2005
Location: Pgh. Pa,
Posts: 906

[peppermrj's Photos](#) 

1996 SC2



Re: S-Series Torque Specifications

Lower control arm to frame as per Autozone for 1991 thru 1998.
"Tighten the cradle bolt to 92 ft. lbs. (125 Nm), then tighten the cradle nut to 74 ft. lbs. (100 Nm)."

REWARD EXCELLENCE!



Rate the quality of this post and help *peppermrj* reputation points. Click the reputation button near the bottom left corner of this message box. Thank you!



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[Zeebins](#)

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